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10/697,890	10/30/2003	Gail A. Alverson	32475-8003US6	9191

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EXAMINER
ZHEN, LI B

ART UNIT	PAPER NUMBER
2194	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Office Action Summary	Application No.	Applicant(s)
		10/697,890	ALVERSON ET AL.
		Examiner	Art Unit	
		Li B. Zhen	2194	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 October 2003*.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-59* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-59* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____ .

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :10/30/03; 8/16/04; 11/22/04; 8/10/05; 12/8/05; 9/25/06; 8/1/07.

DETAILED ACTION

1.   This application is a continuation of 09/361671, which is a continuation of

09/192207.

2.   Claims 1 – 59 are pending in the application.

Double Patenting

3.   A rejection based on double patenting of the "same invention" type finds its
support in the language of 35 U.S.C. 101 which states that "whoever invents or
discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis
added). Thus, the term "same invention," in this context, means an invention drawn to
identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re
Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164
USPQ 619 (CCPA 1970).

        A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by
canceling or amending the conflicting claims so they are no longer coextensive in
scope. The filing of a terminal disclaimer <u>cannot</u> overcome a double patenting rejection
based upon 35 U.S.C. 101.

4.   Claims 1 – 9 and 18 – 24 are provisionally rejected under 35 U.S.C. 101 as

claiming the same invention as that of claims 22 – 37 of copending Application No.

10/366037. This is a <u>provisional</u> double patenting rejection since the conflicting claims

have not in fact been patented.

5.   Claims 1 – 9 and 18 – 24 are provisionally rejected under 35 U.S.C. 101 as

claiming the same invention as that of claims 22 – 37 of copending Application No.

10/339366. This is a <u>provisional</u> double patenting rejection since the conflicting claims

have not in fact been patented.

Claim Rejections - 35 USC § 102

6.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7.   Claims 18, 21, 23, 25 and 29 – 32 are rejected under 35 U.S.C. 102(e) as

being anticipated by U.S. Patent No. 6,341,301 to Hagan.

8.   As to claim 18, Hagan teaches the invention substantially as claimed including a

method in a computer system for accessing a collection of data items [col. 4, lines 10 –

25], the method comprising:

when removing a data item from the collection [read from queue 200; col. 4, lines

17 – 25], fetching and adding to a read counter [col. 4, lines 25 – 40], the fetched read

counter pointing to a bucket within the bucket array [read pointer 206 is employed to

point to the element (in the "first" position) currently being read from queue 200; col. 4,

lines 16 – 25];

reading from the bucket pointed to by the fetched read pointer using a

synchronization access mode of sync [col. 8, line 57 – col. 9, line 14];

removing the data item from association with the bucket pointed to by the fetched read pointer [queue entry that has been read is marked as empty (step 506); col. 7, lines 24 – 50]; and

writing to the bucket pointed to by the fetched write pointer using a synchronization access mode of sync [col. 8, line 57 – col. 9, line 20].

9.   As to claim 21, Hagan teaches the bucket pointed to by the fetched read pointer contains a pointer to a linked list of data items [col. 4, lines 10 – 19].

10.   As to claim 23, Hagan teaches the removing adds one to the read counter [col. 4, lines 25 – 40].

11.   As to claim 25, Hagan teaches the synchronization access mode of sync prevents simultaneous access of a bucket by multiple threads [col. 8, line 57 – col. 9, line 14].

12.   As to claim 29, Hagan teaches the reading is permitted only when the bucket is full [col. 4, lines 3 – 10].

13.   As to claim 30, Hagan teaches after the reading, the bucket is set to empty [col. 7, lines 24 – 50].

14.   As to claim 31, Hagan teaches the writing is permitted only when the bucket is

empty [col. 8, line 57 – col. 9, line 20].

15.   As to claim 32, Hagan teaches wherein after the writing, the bucket is set to full

[col. 4, lines 3 – 10].

Claim Rejections - 35 USC § 103

16.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

17.   This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

18.   **Claims 1 – 17, 19, 20, 22, 24, 26 – 28 and 33 – 59 are rejected under 35**

U.S.C. 103(a) as being unpatentable over Hagan in view of U.S. Patent No.

5,960,434 to Schimmel.

19.   As to claim 1, Hagan teaches the invention substantially as claimed including a

method in a computer system for accessing a collection of data items [queue 200; col.

4, lines 10 – 25], the method comprising:

when adding a data item to the collection, fetching and adding to a write counter

[After a second item is posted to queue 200…write pointer 208 now points to element 3;

col. 4, lines 25 – 40], the fetched write counter [write pointer 208 points to the element

(in the "last" position) in which data is being written into; col. 4, lines 18 – 25] pointing to

a bucket within a bucket array [col. 3, line 62 – col. 4, line 10];

reading from the bucket pointed to by the fetched write pointer using a

synchronization access mode of sync [only one queue is being processed while others

remained locked; col. 8, line 57 – col. 9, line 14];

storing the data item in association with the bucket pointed to by the fetched write

pointer [first entry is posted to an element; col. 4, lines 24 – 40];

writing to the bucket pointed to by the fetched write pointer using a

synchronization access mode of sync [col. 8, line 57 – col. 9, line 20]. Although Hagan

teaches the invention substantially, Hagan does not specifically disclose fetching and

adding to a lower bound to indicate the number of data items added to the collection.

However, Schimmel teaches accessing a collection of data items [hash buckets;

col. 3, line 63 – col. 4, line 9], adding a data item to the collection [additional data

records can be added to the hash buckets as needed; col. 5, lines 55 – 65], writing to

the bucket [col. 5, lines 38 – 49], and fetching and adding to a lower bound to indicate

the number of data items added to the collection [a block 314 for storing a value that

represents the number of hash buckets 332; col. 6, lines 6 – 19].

It would have been obvious to a person of ordinary skill in the art at the time the

invention was made to modify the invention of Hagan to include the features of fetching

and adding to a lower bound to indicate the number of data items added to the

collection. One would have been motivated to make the combination because this

allows the number of hash buckets to be adjusted dynamically, so that more buckets

can be added as the data set size grows [col. 2, lines 29 – 43 of Schimmel].

20. As to claim 33, Hagan as modified teaches a method in a computer system for

accessing a collection of data items [queue 200; col. 4, lines 10 – 25 of Hagan], the

method comprising:

defining a pointer to indicate a location for a data item [read pointer 206; col. 4,

lines 16 – 25 of Hagan];

defining a lower bound to indicate a number of items in the collection [a block

314 for storing a value that represents the number of hash buckets 332; col. 6, lines 6 –

19 of Schimmel]; and

determining based on the lower bound whether the collection has a data item

[col. 7, lines 24 – 50 of Hagan]; and

when it is determined that the collection has a data item, adjusting the lower

bound to indicate that the collection has one less data item [col. 4, lines 52 – 65 of

Schimmel]; and

accessing the data item at the location defined by the pointer [col. 7, lines 24 –

50 of Hagan] using an access mode of sync [col. 8, line 57 – col. 9, line 14 of Hagan].

21.   As to claim 49, Hagan as modified teaches a computer system for accessing

data [queue 200; col. 4, lines 10 – 25 of Hagan], comprising:

a collection of buckets [col. 4, lines 10 – 25 of Hagan and col. 3, line 63 – col. 4,

line 9 of Schimmel];

a read counter [read pointer; col. 4, lines 25 – 40 of Hagan] and a write counter

[write pointer; col. 4, lines 18 – 25 of Hagan] that point to buckets within the collection

[col. 4, lines 18 – 25 of Hagan];

a data structure for each bucket with locations for holding data at each of the

buckets [col. 4, lines 10 – 25 of Hagan and hash buckets; col. 3, line 63 – col. 4, line 9

of Schimmel]; and

a lower bound indicating whether a data item is currently stored in the data

structure [col. 6, lines 6 – 19 of Schimmel].

22.   As to claim 55, Hagan as modified teaches a computer system for accessing a

collection of data items [col. 4, lines 10 – 25 of Hagan], comprising:

fetching a lower bound by a reader of a data item, the lower bound indicating a

number of data items [col. 6, lines 6 – 19 of Schimmel]; and

when the fetched lower bound is greater than or equal to one [col. 7, lines 24 –

50 of Hagan], refetching and decrementing the lower bound [col. 4, lines 52 – 65 of

Schimmel];

when the refetched lower bound is less than one, incrementing the lower bound

[col. 7, lines 30 – 38 of Schimmel]; and

when the refetched lower bound is not less than one, selecting one of a number

of buckets [col. 7, lines 24 – 50 of Hagan], each bucket [col. 3, line 63 – col. 4, line 9 of

Schimmel] for referencing some of the data items [col. 4, lines 16 – 25 of Hagan].

23.   As to claim 2, Hagan as modified teaches the bucket pointed to by the fetched

write pointer contains a pointer to a linked list of data items [col. 4, lines 10 – 19 of

Hagan and col. 9, lines 26 – 36 of Schimmel].

24.   As to claim 3, Hagan as modified teaches the fetched write pointer modulo a

number of buckets in the bucket array points to a bucket within the bucket array [col. 4,

lines 52 – 65 of Schimmel].

25.   As to claim 4, Hagan teaches adding adds one to the write counter [col. 4, lines

25 – 40].

26.   As to claim 5, Hagan as modified teaches the adding adds a size of a bucket to

the write counter [col. 6, lines 6 – 19 of Schimmel].

27.   As to claim 6, Hagan teaches when removing a data item from the collection [col. 4, lines 17 – 25], fetching and adding to a read counter [col. 4, lines 25 – 40], the fetched read counter pointing to a bucket within the bucket array [col. 4, lines 16 – 25]; reading from the bucket pointed to by the fetched read pointer using a synchronization access mode of sync [col. 8, line 57 – col. 9, line 14]; removing the data item from association with the bucket pointed to by the fetched read pointer [col. 7, lines 24 – 50]; and writing to the bucket pointed to by the fetched write pointer using a synchronization access mode of sync [col. 8, line 57 – col. 9, line 20].

28.   As to claim 7, Hagan as modified teaches when removing a data item from the collection, checking the lower bound to ensure that the collection contains a data item [col. 6, lines 6 – 19 of Schimmel], when it cannot be ensured that the collection contains a data item [col. 7, lines 24 – 50 of Hagan], indicating that the collection may be empty [col. 7, lines 24 – 50 of Hagan]; and when it can be ensured that the collection contains a data item [col. 4, lines 52 – 65 of Schimmel], fetching and adding to a read counter [col. 4, lines 25 – 40 of Hagan], the fetched read counter pointing to a bucket within the bucket array [col. 4, lines 16 – 25 of Hagan]; reading from the bucket pointed to by the fetched read pointer using a synchronization access mode of sync [col. 8, line 57 – col. 9, line 14 of Hagan]; removing the data item from association with the bucket pointed to by the fetched read pointer [col. 7, lines 24 – 50 of Hagan]; and writing to the bucket

pointed to by the fetched write pointer using a synchronization access mode of sync [col. 8, line 57 – col. 9, line 20 of Hagan].

29.   As to claim 8, Hagan as modified teaches the checking includes fetching and adding a negative number to the lower bound [col. 4, lines 52 – 65 of Schimmel].

30.   As to claim 9, Hagan as modified teaches the checking includes fetching and adding a positive number to the lower bound when it cannot be ensured that the collection contains an item [col. 6, lines 6 – 19 of Schimmel].

31.   As to claim 10, Hagan teaches the synchronization access mode of sync prevents simultaneous access of a bucket by multiple threads [col. 8, line 57 – col. 9, line 14].

32.   As to claim 11, Hagan as modified teaches the collection of data items is stored in an array data structure [col. 4, lines 52 – 65 of Schimmel].

33.   As to claim 12, Hagan as modified teaches the collection of data items is stored in a linked list data structure [col. 4, lines 10 – 19 of Hagan and col. 9, lines 26 – 36 of Schimmel].

34. As to claim 13, Hagan as modified teaches the collection of data items is stored in a tree data structure [col. 5, line 65 – col. 6, line 6 of Schimmel].

35. As to claim 14, Hagan teaches the reading is permitted only when the bucket is full [col. 4, lines 3 – 10].

36. As to claim 15, Hagan teaches after the reading, the bucket is set to empty [col. 7, lines 24 – 50].

37. As to claim 16, Hagan teaches the writing is permitted only when the bucket is empty [col. 8, line 57 – col. 9, line 20].

38. As to claim 17, Hagan teaches wherein after the writing, the bucket is set to full [col. 4, lines 3 – 10].

39. As to claim 19, Hagan as modified teaches before fetching and adding to the read counter checking a lower bound [col. 6, lines 6 – 19 of Schimmel] to ensure that the collection contains a data item [col. 7, lines 24 – 50 of Hagan].

40. As to claim 20, Hagan teaches wherein it cannot be ensured that the collection contains a data item, indicating that a data item cannot be removed [col. 7, lines 24 – 50].

41.   As to claim 22, Hagan as modified teaches the fetched read pointer modulo a number of buckets in the bucket array points to a bucket within the bucket array [col. 5, lines 48 – 56 of Schimmel].

42.   As to claim 24, Hagan as modified teaches the adding adds a size of a bucket to the read counter [col. 7, lines 31 – 38 of Schimmel].

43.   As to claim 26, Hagan as modified teaches the collection of data items is stored in an array data structure [col. 4, lines 52 – 65 of Schimmel].

44.   As to claim 27, Hagan as modified teaches the collection of data items is stored in a linked list data structure [col. 4, lines 10 – 19 of Hagan and col. 9, lines 26 – 36 of Schimmel].

45.   As to claim 28, Hagan as modified teaches the collection of data items is stored in a tree data structure [col. 5, line 65 – col. 6, line 6 of Schimmel].

46.   As to claim 34, Hagan teaches wherein read access to the location is permitted only when the location is full [col. 4, lines 3 – 10].

47.   As to claim 35, Hagan teaches after the read access, the location is set to empty [col. 7, lines 24 – 50].

48.   As to claim 36, Hagan teaches the write access to the location is permitted only when the location is empty [col. 8, line 57 – col. 9, line 20].

49.   As to claim 37, Hagan teaches wherein after the write access, the location is set to full [col. 4, lines 3 – 10].

50.   As to claim 38, Hagan teaches wherein the data items of the collection are accessed by multiple readers and writers [col. 8, line 57 – col. 9, line 14].

51.   As to claim 39, Hagan teaches the data items of the collection are accessed by multiple producers [col. 5, lines 5 – 20].

52.   As to claim 40, Hagan teaches wherein the data items of the collection are accessed by multiple consumers [col. 5, lines 5 – 20].

53.   As to claim 41, Hagan teaches when access to the location by a thread is blocked [col. 8, line 57 – col. 9, line 14], enabling an exception to be raised when the location is next accessed [col. 5, lines 45 – 65]; and blocking the thread [col. 5, lines 33 – 45]; and when an exception is raised as a result of access by another thread to that

location, completing the access by that other thread to that location; and restarting

execution of the blocked thread [col. 6, lines 9 – 27].

54.   As to claim 42, Hagan teaches when access by the thread to the location is

blocked, saving a state of the thread and storing a reference to the thread in the location

[col. 6, lines 9 – 27].

55.   As to claim 43, Hagan teaches wherein the reference is a pointer to a data

structure that identifies the blocked thread and the saved state [col. 6, lines 26 – 42].

56.   As to claim 44, Hagan teaches wherein the data structure indicates the value that

was stored in the location before storing the reference [col. 7, lines 10 – 25].

57.   As to claim 45, Hagan teaches wherein the collection includes an array of

buckets, each bucket including a pointer to data items [col. 8, line 57 – col. 9, line 14].

58.   As to claim 46, Hagan teaches wherein the collection includes a write pointer that

indicates a bucket into which a next data item is to be stored [col. 4, lines 18 – 25] and a

read pointer that indicates a bucket from which a next data item is to be read [col. 4,

lines 25 – 40].

59.   As to claim 47, Hagan as modified teaches wherein the pointed to data items are stored in a linked list [col. 4, lines 10 – 19 of Hagan and col. 9, lines 26 – 36 of Schimmel].

60.   As to claim 48, Hagan teaches wherein multiple readers and writers can be accessing data items of different buckets simultaneously [col. 8, line 57 – col. 9, line 14].

61.   As to claim 50, Hagan teaches wherein reading data from a bucket is permitted only when the bucket is full [col. 4, lines 3 – 10].

62.   As to claim 51, Hagan teaches wherein write access to a bucket is permitted only when the bucket is empty [col. 7, lines 24 – 50].

63.   As to claim 52, Hagan teaches accessing programs that each operates in a different thread [col. 5, lines 5 – 20].

64.   As to claim 53, Hagan teaches wherein the data is accessed by multiple reading threads and writing threads [col. 5, lines 5 – 20].

65.   As to claim 54, Hagan teaches when access by a thread to a bucket is blocked [col. 8, line 57 – col. 9, line 14], enabling an exception to be raised when the bucket is next accessed [col. 5, lines 45 – 65]; and blocking the thread [col. 5, lines 33 – 45]; and

when an exception is raised as a result of access by another thread to that bucket,

completing the access by that other thread to that bucket; and restarting execution of

the blocked thread [col. 6, lines 9 – 27].

66.   As to claim 56, Hagan as modified teaches the selecting includes calculating a

bucket location based on a read counter modulo a number of buckets [col. 4, lines 52 –

65 of Schimmel].

67.   As to claim 57, Hagan as modified teaches wherein the decrementing subtracts

one [col. 4, lines 52 – 65 of Schimmel].

68.   As to claim 58, Hagan as modified teaches wherein the incrementing adds one

[col. 7, lines 30 – 38 of Schimmel].

69.   As to claim 59, Hagan teaches wherein multiple producers and multiple

consumers are accessing the collection of data items [col. 8, line 57 – col. 9, line 14].

Conclusion

70.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

U.S. Patent No. 6,252,876 discloses management of dynamic data lists within a

real-time environment.

CONTACT INFORMATION

71.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Li B. Zhen whose telephone number is (571) 272-3768.

The examiner can normally be reached on Mon - Fri, 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, William Thomson can be reached on 571-272-3718. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Li B. Zhen
Examiner
Art Unit 2194

LBZ   11/26/2007